

**REMARKS**

Applicants respectfully request that the above application be reconsidered, as amended. Claims 1-2, 4-12, and 14-28 are currently pending.

Applicants acknowledge the statement at page 4 of the Office Action that Applicants' prior arguments/amendments have overcome the following rejections presented in the prior Office Action: (1) Claims 3, 13 and 25 under 35 U.S.C. § 112, second paragraph; (2) Claims 1-7 under 35 U.S.C. §§ 102(b)/103 based on Nakayama et al; (3) Claims 1, 8-9 and 21-23 under 35 U.S.C. § 102(b) based on U.S. Patent 6,333,118 (Alpine et al); and (4) Claims 1-28 under 35 U.S.C. §§ 102(a) based on U.S. Patent 6,586,115 (Rigney et al).

Claims 1, 8 and 21 have been amended to recite ceramic compositions/thermal barrier coatings where the stabilizer component comprises: (a) a first metal oxide selected from the group consisting of yttria, calcia, ceria, scandia, magnesia, india and mixtures thereof in an amount of from about 4 to about 6 mole %; and (b) lanthana in an amount of from about 0.8 to about 2 mole %. Support for these amendments can be found in paragraph [0028] at page 8 of the above application.

In view of these amendments to Claims 1, 8 and 21, Claims 4, 14-15 and 26-28 have been amended accordingly to recite a mole % ratio of lanthana to total stabilizing component, and Claims 3 and 13 have been cancelled. Claims 6, 16 and 25 have been amended to recite that the first metal oxide is yttria in an amount of from about 4 to about 5 mole % and that lanthana is present in an amount of from about 0.8 to about 1.5 mole %. Support for these amendments can be found in paragraph [0028] at page 8 of the above application.

**A. Response to Rejection of Claims 1 and 6 under 35 U.S.C. § 112, First Paragraph**

At page 2 of the Office Action, the Examiner has rejected Claims 3, 13 and 25 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Office Action alleges an inconsistency between the amendments to Claims 1 and 6, and what is described in paragraph [0028] of the above application.

Responsive to rejection, Claims 1 and 6 have been amended to make the language in these Claims consistent with that supported by paragraph [0028] of the above application. Accordingly, this rejection has been overcome.

**B. Response to Rejection of Claims 1-5, 8-15 and 18-27 under 35 U.S.C. § 102(b) as Anticipated by Rickerby et al**

At page 3 of the Office Action, the Examiner has rejected Claims 1-5, 8-15 and 18-27 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 6,025,078 (Rickerby et al).

Responsive to this rejection, Claims 1, 8 and 21 have been amended to recite that the amount of the first metal oxide (*e.g.*, yttria) is in the range of from about 4 to about 6 mole %, in combination with lanthana in an amount of from about 0.8 to about 2 mole %. Claims 1-5, 8-15 and 18-27, as now amended, are distinguishable and unobvious over Rickerby et al. Rickerby et al teaches ceramic barrier coatings that comprise zirconia, from 4 to 20 wt.% of a first metallic oxide (yttria, calcia, magnesia, india, scandia or ytterbia), and from 5 to 25 wt. % of a second metallic oxide (dysprosia, erbia, europia, gadolinia, neodymia, praseodymia, urania, or ytterbia). See col. 2, lines 27-61. However, Rickerby et al does not teach or suggest combinations of these first metallic oxides with lanthana as the second metallic oxide in an amount of from about 0.8 to about 2 mole %.

Accordingly, Claims 1-5, 8-15 and 18-27, as now amended, are novel and unobvious over Rickerby et al.

**C. Response to Rejection of Claims 1-5 under 35 U.S.C. § 103(a) as Unpatentable over Mazdiyasni et al**

At page 3 of the Office Action, the Examiner has rejected Claims 3-5 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent 3,525,597 (Mazdiyasni et al).

Claims 1-5, as now amended, are distinguishable and unobvious over Mazdiyasni et al. Mazdiyasni et al does not teach combinations of yttria with lanthana according to Claims 1-5.

Instead, Mazdiyasni et al only teaches that the metallic oxide can be yttrium oxide, dysprosium oxide or ytterbium oxide. See abstract and col. 2, lines 54-55.

Accordingly, Claims 1-5, as amended, are unobvious over Mazdiyasni et al.

**D. Response to Rejection of Claims 8-28 under 35 U.S.C. § 103(a) as Unpatentable over Bruce**

At pages 3-4 of the Office Action, the Examiner has rejected Claims 8-28 under 35 U.S.C. § 102(a) as anticipated by U.S. Patent Application 2003/0224200 (Bruce).

Claims 8-28, as now amended, are distinguishable and unobvious over Bruce. While Bruce suggests that lanthana, neodymia and/or tantala additions up to 5 or 10 weight % each, or up to 10 weight % total, can improve the impact resistance of yttria-stabilized zirconia at levels of yttria that can broadly range from about 1 to about 10 weight % (see paragraph [0023] at page 3 of Bruce), Bruce also teaches that the greatest impact resistance for lanthana, neodymia and/or tantala additions occurs when the level of yttria is 4 weight % or less (see paragraph [0017] at page 2 and paragraph [0023] at page 3 of Bruce). The range of yttria (from about 4 to about 6 mole %) now defined in Claims 8 and 21 is narrower than the broad range of yttria taught by Bruce and is greater than the 4 weight % or less yttria that Bruce suggests is preferred, and is therefore not taught or suggested by Bruce. Bruce et al particularly does not teach or suggest this claimed range of yttria in combination with the claimed range of lanthana (i.e., from about 0.8 to about 2 mole %).

Accordingly, Claims 8-28, as amended, are novel and unobvious over Bruce.

**E. Response to Rejection of Claims 1, 8-9 and 21-23 under 35 USC 103(a) as Unpatentable over Litton et al**

At page 5 of the Office Action, the Examiner has rejected Claims 1, 8-9 and 21-23 under 35 USC 103(a) as unpatentable over U.S. Patent 6,730,422 (Litton et al).

Claims 1, 8-9 and 21-23, as now amended, are distinguishable and unobvious over Litton et al. As indicated in the Office Action, Litton et al teaches a ceramic material useful as a

thermal barrier coating where the first oxide can be zirconia, where the second metal oxide can be at least one of lanthana and samaria in an amount of 5-60 mol %, and where yttria can be present in an amount of 5-60 mol %. See col. 5, lines 24-33. By contrast, Claims 1, 8-9 and 21-23, as amended, define a lower level of lanthana (i.e., from about 0.8 to about 2 mole %) than that taught by Litton et al.

Accordingly, Claims 1, 8-9 and 21-23, as amended, are unobvious over Litton et al.

**F. Conclusion**

In conclusion, Claims 1-2, 4-12, and 14-28, as amended, comply with the requirements of 35 U.S.C. § 112, first paragraph. Claims 1-2, 4-12, and 14-28, as amended, are also novel and unobvious over the prior art relied in the Office Action. Accordingly, Applicants respectfully request that Claims 1-2, 4-12, and 14-28, as amended, be allowed to issue in the above application.

Respectfully submitted,  
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